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SEED TREATMENT

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**-insures against
crop losses**

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DEPARTMENT OF AGRICULTURE AND CONSERVATION

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SEED TREATMENT INSURES AGAINST CROP LOSSES

WHY TREAT SEED GRAIN?

In the interest of grain-growing farmers, Manitoba Agronomists recommend that all seed of cereals and flax should be treated with an officially approved seed disinfectant. A few cents per acre invested in seed treatment insures against crop loss. Moreover, the cost of seed treatment per acre may be repaid many times through improved yield and quality.



Treatment of seed with organic mercury disinfectants -

- Prevents most of the cereal smuts and other seed-borne diseases.
- Prevents decay of seed in the soil.
- Reduces root rot damage.
- Increases germination percentage.
- Speeds up seedling emergence.
- Produces vigorous seedlings.
- Improves crop stands.
- Improves the yield and grade of the resulting crop.

Seeds are carriers of disease germs and spreaders of crop diseases which rob the farmer of his profits. Seed-borne diseases cause crop losses to Manitoba farmers exceeding millions of dollars every year. The following diseases are caused by organisms which are carried on the surface of seeds. They may be controlled by proper seed treatment.



- Bunt (stinking smut) of wheat
- Seedling blight of wheat (a root and leaf disease)
- Covered smut of barley
- False loose smut of barley
- Seedling blight of barley (a root and leaf disease)
- Net blotch of barley (leaf disease)
- Covered smut of oats
- Loose smut of oats
- Seedling blight of oats (a root and leaf disease)
- Seedling blight of flax
- Seed rots of wheat, oats, barley, and flax.

These diseases are usually caused by soil micro-organisms entering cracked, broken, or peeled kernels.

Seed treatment with organic mercury compounds also provides some protection from soil-borne diseases, including common root rot of wheat and barley.

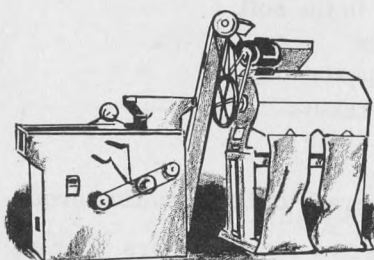
REASONS FOR SEED TREATMENT

- An inexpensive form of crop insurance.
- The investment pays dividends the first year.
- Germination, growth, stand, vigor, yield and quality of the crop are improved.
- Crop diseases that rob the farmer of his profits are controlled.

HOW TO TREAT SEED GRAIN

1. Clean the Seed Before Treating It

Careful seed cleaning removes noxious weed seeds and trash as well as any shrunken, diseased kernels which may be present. This improves the quality of the whole seed lot.



Careful seed cleaning is a sound farm practice. Carefully cleaned seed is easier to treat. It allows for better coverage by the chemical.

2. Buy Approved Chemicals Early

Local dealers usually stock supplies of the approved chemicals. However, it is often difficult for them to estimate seasonal requirements. To avoid disappointment order your chemicals early. When ordering, remember that materials supplied as dry powders will treat 32 bushels of cereal seed (11 bus. of flax) per pound, and the liquids about 200 bushels of seed per gallon.

3. Follow the Label Instructions Carefully

All seed-treating chemical containers must carry label instructions approved by officials of the Canada Department of Agriculture, indicating the safe and proper use of the chemical. These printed instructions are provided for the user's protection. Always read the label before using any agricultural



chemical. Apply the chemical at the recommended rate. Anything less than the recommended rate will not do a satisfactory job; anything more is a waste of chemical and money.

4. Use the Recommended Equipment

A treating machine is necessary to do a good job. Machines for mixing chemicals and seed are readily available and inexpensive. For best results all seeds must be uniformly covered with the chemical.

5. Store Treated Grain Before Seeding

To effectively destroy smut spores and other disease organisms, time is required for the chemical to vaporize and penetrate the seed coats, particularly those of oats and barley.

After seed treatment and before sowing, (unless otherwise specified by the manufacturer), the following waiting periods should be observed:

24 hours for wheat and flax - 7 days for barley and oats.

Sound, dry seed can be safely treated several weeks before sowing, but it is not recommended to treat more than three months before sowing.

CHEMICALS TO USE IN SEED TREATMENT

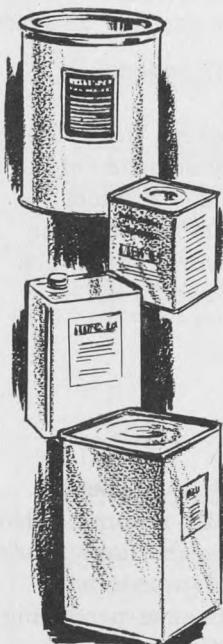
A. Chemicals for Control of Seed-Borne Diseases

1. Organic Mercury Compounds (Powders)

Agrox C, Ceresan M, Co-op. Organic Mercury, Leytosan, Canuck organic mercury, Puraseed, San. At the recommended rate of 1/2 oz. per bushel for wheat, oats, barley or rye -- one pound of product treats 32 bushels of seed. Treating flax at its recommended rate of 1 1/2 oz. per bushel - one pound of the chemical treats 11 bushels of seed.

2. Organic Mercury Compounds (Liquids)

Ceresan 75, Gallotox, Liqui-San, Panogen, Agrosol, Canuck-liquid mercury. At the recommended rate of 3/4 fluid ounce per bushel for wheat, oats, barley or rye - one gallon of product treats 213 bushels of seed. Used on flax, at 1 1/2 fluid ounces per bushel - one gallon treats 107 bushels of seed. Double strength and triple strength products are also available.



B. Chemicals for Control of Seed-Borne Diseases and Wireworms

1. Organic Mercury Compounds and Insecticides (Powders)

Aldmer, Canuck-mercury Aldrin, Co-op. Dual Dressing, Leytosan G91, Mergamma C, Merlane, Puradrin, Shell Seed Dressing AM. At the rate of 2 1/2 oz. of product applied to the seed to be sown on one acre - one pound of product will treat 7 acres.

2. Organic Mercury Compounds and Insecticides (Liquids)

Dual seed dressing for the control of seed diseases and wireworms.

Pandrinox - at the recommended rate of 3 fluid oz. per bushel for wheat, barley and rye. One gallon of the product treats 53 bushels of seed for sowing on 42 acres. (Oats - 2 1/8 oz.)

C. Chemicals for Control of Bunt Smut of Wheat Only

Non-Mercury Compounds (Powders)

Anti-Carie, Bunt-No-More, Co-op. Hexa, No-Bunt, Tritisan C. At the recommended rate of 1/2 ounce per bushel, one pound of product treats 32 bushels of wheat. This treatment is effective only for Bunt (i.e. covered smut) control of wheat. These products should not be used on oats, barley and flax.

D. Non-Recommended Chemicals

Formaldehyde and Copper Sulphate - These chemicals are no longer officially recommended for treating the seeds of cereals and flax. They reduce the ability of seeds to germinate and provide no protection against disease-producing organisms which inhabit the soil.



BENEFITS OF SEED TREATMENT

Disinfects the Seed Before Planting

Although seed grain may appear free of disease, many organisms may be present on the surface of the seed. If not controlled, these organisms may infect, with smuts and other fungus diseases, the plant produced from this seed. Chemical seed treatment acts as a disinfectant and destroys these organisms carried on the seed surface.

Protects the Seed After Planting

The soil into which seed is planted is teeming with countless living organisms, particularly molds and bacteria. Many of these are beneficial, but some are harmful to seeds and small seedlings. Such organisms may cause the seeds to rot before they germinate. Other organisms may attack the small seedlings causing seedling blights. Properly treated seed, carrying a uniform coating of chemical, is protected against attack by organisms which inhabit the soil. If the seeds and the seedlings are protected against attack by disease organisms, the seedlings emerge more quickly and their growth is more vigorous.

Provides Protection Against Wireworm Damage

Besides controlling seed and soil-borne diseases, dual-purpose treatments also protect the seeds and seedlings against attack by wireworms which do considerable damage in some areas.

Provides Low-Cost Protection

Seed treatment is not a substitute for good seed, but it does give good seed a chance to do its best. When it is necessary to use damaged seed, (for example, flax seed which is often cracked or damaged in threshing) the protection offered by seed treatment is more important than ever. The protective value of seed treatment is doubly important where seed is sown under dry or other adverse soil conditions.

THE COST OF TREATING SEED IS ONLY A FEW CENTS PER BUSHEL. SEED TREATMENT IS THE CHEAPEST FORM OF CROP INSURANCE AVAILABLE TO THE FARMER.



PRECAUTIONS IN TREATING SEED

1. Most seed treatment chemicals are poisonous. Follow the manufacturer's instructions when treating and handling seed.
2. Avoid inhaling vapors or dust. Treat seed outdoors if possible. Use a mask.
3. Do not feed treated grain to livestock.
4. Avoid breaking the law - do not deliver treated grain to the elevator.
5. Treated seed offered for sale must be clearly marked to indicate that it is unfit for food or feed.
6. Keep packages of seed treatment chemicals labelled and tightly closed.
7. Good, clean, treated seed, if properly stored, may be held over for use the next year. If at all possible, however, surplus treated seed should be sold as seed or sown for green feed.

